

REMARKS/ARGUMENTS

Claims 1-10 are pending. By this Amendment, claims 1, 4-8 and 10 are amended. Support for the amendments to claims 1, 4-8 and 10 can be found, for example, in original claims 1, 4-8 and 10. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Objection to the Claims

The Office Action objects to claims 4-10 as being in improper dependent form. By this Amendment, claims 4-10 is amended to obviate the objection. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Rejection Under 35 U.S.C. §102/§103

The Office Action rejects claims 1-3 under 35 U.S.C. §102(b), or in the alternative under 35 U.S.C. §103(a), over U.S. Patent No. 5,393,838 to Moczygembe et al. ("Moczygembe 838"). Applicants respectfully traverse the rejection.

Claim 1 recites "[a] linear block copolymer composition, comprising from 55 to 95 mass% of a vinyl aromatic hydrocarbon and from 5 to 45 mass% of a conjugated diene as monomer units; wherein: the linear block copolymer composition is a mixture of a linear block copolymer having at least three types of polymer blocks with different molecular weights, each comprising a vinyl aromatic hydrocarbon as monomer units and represented by the following formula: S-B-S where S is a polymer block comprising a vinyl aromatic hydrocarbon as monomer units, and B is a polymer block comprising a conjugated diene as monomer units ..." (emphasis added) Moczygembe 838 does not disclose or suggest such a composition.

As is evident from the foregoing excerpt of claim 1 and the description in the present specification, the present invention relates to a composition including linear block copolymers having a polymodal molecular weight distribution. The linear block copolymers of claim 1 include a conjugated diene as a soft segment, and do not employ coupling agents. By contrast, the compositions of Moczygembe 838 include copolymers having a random monovinyl arylene/conjugated diene structure as a soft segment and employ coupling agents. That is, the composition of Moczygembe 838 includes components that differ in structure from the components of the composition of claim 1.

As is plain from Moczygembe 838, the use of a coupling agent is essential to preparation of the disclosed polymers. One of ordinary skill in the art would understand that a product, as described in Moczygembe 838, prepared by a method involving use of a coupling agent will contain, as impurities, block polymers synthesized before addition of the coupling agent. Particularly, a skilled artisan practicing the production method described in Moczygembe 838 would expect to obtain either (a) a mixture of a radial-type polymer and unreacted SB block polymer, or (b) a mixture of an SBS-type linear polymer and an SB polymer.

In view of the foregoing, the following differences between the composition of claim 1 and the compositions of Moczygembe 838 are apparent. The composition of claim 1 includes a linear polymer with high purity having an SBS structure, while the compositions of Moczygembe 838 include either a mixture of a radial-type polymer and unreacted SB block polymer, or a mixture of an SBS-type linear polymer and an SB polymer. The composition of claim 1 is obtained by sequentially adding initiator and monomer and then terminating the polymerization, while the compositions of Moczygembe 838 are obtained by sequentially adding initiator and monomer and then bonding molecular endpoints with a coupling agent. The composition of claim 1 includes polymers having a homopolymer of a

conjugated diene as a soft segment, while the compositions of Moczygembe 838 include polymers having a random monovinyl arylene/conjugated diene structure as a soft segment.

The Office Action attempts to compare the expected molecular weight properties of the compositions of Moczygembe 838 to the molecular weight properties recited in claim 1. *See, e.g.*, Office Action, pages 3 to 5. However, due to the categorical differences between the compositions of Moczygembe 838 and the composition of claim 1, such comparisons are inapposite. The compositions of Moczygembe 838 and the composition of claim 1 are comparable only in their respective overall compositions (e.g., ratio of styrene to butadiene). The properties of a block copolymer composition, such as dynamic properties, impact strength, transparency, compatibility, etc., are determined by characteristics, such as molecular weight, molecular weight distribution, morphology, structure of soft and hard segments, etc. Because the differences between the compositions of Moczygembe 838 and the composition of claim 1 are fundamental, it would not be possible to obtain a composition having the properties possible in the composition of claim 1 based on the teachings of Moczygembe 838.

As explained, claim 1 is not anticipated by and would not have been rendered obvious by Moczygembe 838. Claims 2 and 3 depend from claim 1 and, thus, also are not anticipated by and would not have been rendered obvious by Moczygembe 838. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §103

The Office Action rejects claims 1-3 under 35 U.S.C. §103(a) over U.S. Patent No. 5,705,569 to Moczygembe et al. ("Moczygembe 569"). Applicants respectfully traverse the rejection.

The compositions of Moczygembe 569, like the compositions of Moczygembe 838, include copolymers having a random monovinyl arylene/conjugated diene structure as a soft segment and employ coupling agents. Accordingly, Moczygembe 569 fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above with respect to Moczygembe 838.

As explained, claim 1 would not have been rendered obvious by Moczygembe 569. Claims 2 and 3 depend from claim 1 and, thus, also would not have been rendered obvious by Moczygembe 569. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Double Patenting

The Office Action provisionally rejects claims 1-3 under the judicially created doctrine of obviousness-type double patenting over claims 1-13 of U.S. Patent Application No. 10/549,572. Applicants respectfully request that the provisional rejection be held in abeyance until the 572 application issues as a patent or the present application is otherwise in condition for allowance.

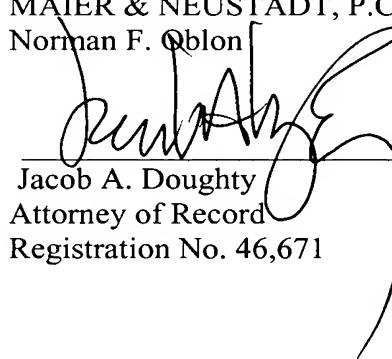
Conclusion

For the foregoing reasons, Applicants submit that claims 1-3 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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